

Claims

What is claimed is:

1. A Thin-Film Transistor (TFT)- Liquid Crystal Display (LCD) apparatus, at least comprising;
5 a substrate;
a metal layer having multiple metal wires, connected with the upper side of the substrate; and
a semiconductor layer having a floating connection with said metal layer, but without having an electricity connection with said metal layer;
10 wherein said semiconductor layer can effectively provide light-shielding and anti-electrostatic protections.
2. The TFT-LCD apparatus according to claim 1, wherein said substrate can be Thin-Film Transistor (TFT) substrate.
3. The TFT-LCD apparatus according to claim 1, wherein said substrate can
15 be color filter substrate.
4. The TFT-LCD apparatus according to claim 2, wherein said metal layer can be a gate electrode wire in TFT-LCD apparatus.
5. The TFT-LCD apparatus according to claim 3, wherein said metal layer can be a source electrode wire in TFT-LCD apparatus.
- 20 6. The TFT-LCD apparatus according to claim 1, wherein said semiconductor layer can be an active layer in TFT-LCD apparatus.
7. The TFT-LCD apparatus according to claim 1, wherein said semiconductor layer can be a meshed coating covering on the down side of the said multiple metal wires.
- 25 8. The TFT-LCD apparatus according to claim 1, wherein said semiconductor layer can be a striped shape situated between said multiple metal wires.
9. A TFT-LCD apparatus according to claim 1, wherein said semiconductor

layer can be a striped shape covering on said multiple metal wires.

10. The TFT-LCD apparatus according to claim 1, wherein said semiconductor layer can be a meshed coating covering on the said multiple metal wires.

11. The TFT-LCD apparatus according to claim 1, wherein said semiconductor
5 layer can be composed of A-Si layer materials.

12. The TFT-LCD apparatus according to claim 1, wherein said semiconductor layer can be composed of Poly-Si layer materials.

13. The TFT-LCD apparatus according to claim 1, wherein said semiconductor layer can be composed of SiGe Alloy layer materials.

10 14. The TFT-LCD apparatus according to claim 8 or claim 9, wherein the width of said striped shape semiconductor layer can be wider than the width of said metal wires.

15. The Thin-Film Transistor (TFT)- Liquid Crystal Display (LCD) manufacturing method applies to a TFT-LCD, comprising the steps of:

15 forming a first metal layer on said substrate, and defining a first metal layer wire;

forming a first semiconductor layer on said first metal layer;

forming a second semiconductor layer on said first semiconductor layer;

forming a second metal layer on said second semiconductor layer, and

20 defining a second metal wire;

wherein said substrate can be a color filter substrate or a TFT substrate. The said first metal layer and the said second metal layer are on the said TFT substrate forming gate electrode wires, further, the said first metal layer and the said second metal layer are on the color filter substrate forming source
25 electrode wires, and by using said semiconductor layer can effectively achieve back-light shielding and provide an anti-electrostatic protection.

16. The TFT-LCD manufacturing method according to claim 15, wherein said

metal layer can be a gate electrode wire in TFT-LCD apparatus.

17. The TFT-LCD manufacturing method according to claim 15, wherein said metal layer can be a source electrode wire in TFT-LCD apparatus.

18. The TFT-LCD manufacturing method according to claim 15, wherein said
5 semiconductor layer can be a striped shape situated between said metal wires in said metal layer.

19. The TFT-LCD manufacturing method according to claim 15, wherein said semiconductor layer can be a meshed coating covering on the said metal wires in said metal layer.

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